APPENDIX C

Market Transformation and the Current State of Performance in New Jersey

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Section I

What is Market Transformation and Why is it Important?

Defining Market Transformation

Market transformation is a key objective in the SBC-funded EE and RE programs in New Jersey. A transformed market implies that the market barriers to the adoption of cost-effective EE and RE products and services have been reduced to the point where efficient goods and services are normal practice in appropriate applications. If these changes are self-sustaining over time (i.e, without the need for continued intervention), then the market has been fully transformed.

In 1996, the California DSM Measurement Advisory Committee commissioned a scoping study to examine the extent to which California DSM programs, which were designed to maximize net resource benefits, may also have contributed to market transformation. This study proposed a definition for market transformation that has since become the standard, and the three key concepts in this definition are:

- Market Transformation: A reduction in market barriers resulting from a market intervention, as evidenced by a set of market effects, that lasts after the intervention has been withdrawn, reduced, or changed.
- Market Barrier: Any characteristic of the market for an energy-related product, service, or practice that helps to explain the gap between the actual level of investment in or practice of EE/RE and an increased level that would appear to be cost beneficial.
- Market Intervention: A deliberate effort by government or utilities to reduce market barriers and thereby change the level of investment in EE and RE.

- Market Effect: A change in the structure of a market or the behavior of participants in a market that is reflective of an

> increase in the adoption of EE and RE products, services, or practices and is causally related to market intervention(s).

This definition provides a standard by which to evaluate the impact and success of the SBC EE and RE programs in New Jersey; specifically:

- If an EE/RE program yields no lasting market effects, then the market has not been transformed because the reduction in market barriers has been only temporary.
- If a program yields lasting market effects but further intervention is still warranted, then the market has only been partially transformed.
- If there are lasting market effects and the most important and relevant market barriers have been reduced to the point where further intervention is no longer deemed appropriate, then the market has been completely transformed.

In many cases, continued intervention (possibly very different in scale and scope from the initial intervention) will be warranted; i.e., it will be more appropriate to talk of markets that have only been partially transformed. Market transformation is an objective that all EE and RE programs have at least a theoretical potential to achieve, although some programs may do so more effectively than others, and is thus critical in evaluating the effectiveness of the New Jersey initiatives.

More broadly, transforming a market means changing the types of products or services that are offered in the market, the basis on which purchase and behavioral decisions are made, the type or number of actors in the market, or in some other way altering this set of interactions in a self-sustaining way. Market transformation is actually a result or a desired outcome, more than it is a type of program, and any program that has a lasting effect on the structure or operation of a market could be called a market transformation program. Market transformation simply means that a market is indefinitely transformed as a result of a program.

Thus, market transformation refers only to those programs that explicitly seek to cause changes in the structure of the market for an energy product or service, or in the behavior of some group of market actors, in such a way that energy efficiency is improved and the changes remain after the

program has ended. Unlike traditional DSM programs, market transformation programs do not only try to influence multitudes of purchase or behavioral decisions individually; they explicitly try to change the market so that similar decisions will be made in the future by different individuals who need no programmatic intervention to make the targeted purchase or to act in the desired manner.

Because market transformation is a desired outcome rather than a method or technique, there is considerable variation (and evolution) in the types of programs that can be designed to change markets or behavior. However, most market transformation programs share the following general characteristics:

- Involvement of multiple market actors. Often, these are programs that a single utility cannot implement by itself. Active, critical roles must often be played by numerous organizations, such as various entitles participating In a product's distribution chain (manufacturers, distributors, retailers, etc.), trade allies who are responsible for specifying targeted products (contractors. engineers, builders, trade associations), organizations responsible for implementing the program (utility companies, advocacy groups, special coordinating organizations), brokers/facilitators with knowledge and breadth of contacts (government agencies, technology-specific organizations, trade associations), and promoters (utilities, government agencies, advocacy groups, manufacturers and retailers).
- Activities designed to remove or lower specific market barriers to energy efficient technologies. Typically, a number of market barriers must be removed before the market can be permanently changed, and these barriers are usually on both the supply (e.g.. manufacturer) and demand (e.g., customer) sides.
- Longer time frames than other DSM programs before the majority of program impacts are obtained (i.e., before the market has been permanently changed). Time frames can be a few years or a decade, depending on how much momentum

for change may already exist and exactly what is required to change the market.

- Significant activity upstream from the customer or end user. This characteristic is related to giving attention to both the supply and demand sides of energy products and services, that is, wherever significant market barriers exist.

Market transformation programs generally:

- Result in energy savings that are not necessarily specific to a single utility service territory, or even to a single regulatory jurisdiction.
- Have the potential to achieve very large energy savings relative to traditional DSM programs (by affecting future energy-related decisions).
- Take more time to achieve energy savings results (delayed savings).
- Take a more macro perspective than traditional DSM programs.
- Are planned to result in permanent change in the market.
- Create a set of conditions under which the self-interest of market actors will be aligned with achieving greater energy efficiency in at least some part of the market (use of market forces to achieve energy efficiency).
- Often link energy efficiency with other product or service attributes that are of equal or greater value to the end user (i.e., are more focused on meeting consumer needs).
- Involve and depend to a significant extent on the voluntary cooperation of a range of market actors over which utilities and commissions have little or no control (e.g., a critical role for manufacturers).
- Take advantage of momentum in the market for the targeted or related changes.

- May require that utilities and/or regulators play more of a supportive role rather than a central role in achieving energy efficiency objectives.

When ratepayer funds are used to support market transformation initiatives, it is critical that the initiatives be applied in the context of a coherent market transformation plan that maximizes the chances for success. The following features are required for the market transformation process to be successful:

- Documentation on how the market operates; that is, the set of complex interactions appropriate to the targeted technology or market.
- Baseline Information on the efficiency levels to be improved by the program, and on the market indicators that will be used to establish that market transformation has occurred or is occurring.
- Identification of key market barriers to increased energy efficiency in the target market, including both the supply side (e.g. products and services available in the market) and the demand side (consumer attitudes and behavior).
- Development of an implementation plan for reducing or eliminating market barriers, including identification of a lead implementer (or program champion) and other members of any consortium or coalition formed to implement the program, estimation of the timing and levels of costs and benefits, rationale for the selection of market indicators, and a forecast of the type and timing of incremental changes expected to occur to efficiency levels and market indicators both in the absence of the program and as a result of the program.
- A specific Implementation plan and timetable and a rationale for it based on market conditions. This can include the presence of existing momentum for change, possible linkage of efficiency to other features valued by the targeted decision makers, and existence of related or supporting efforts In the market and how the program will Interface with them.

- Estimation of program cost-effectiveness to the relevant jurisdiction, and of program value to each market actor whose participation in the program is crucial.
- A program evaluation strategy, including both impact- and process-oriented efforts. The strategy must define the approach to estimating the program's impacts on energy use and the market indicators identified as part of the program design. It must also identify reasons for unexpected successes and failures.
- An exit strategy for the program, including rationale and projected timing and trigger points / thresholds.

Difference Between Market Transformation and Traditional DSM Programs

The key measures that differentiate the market transformation program design from traditional DSM program designs include the following:

- A focus on removing or lowering market barriers. Market transformation programs should be directly targeted at removing or lowering market-specific barriers. Key barriers to the targeted technology, service, or behavior must be identified; the market will not be transformed if the program removes only barriers existing on the product supply side or only on the customer demand side.
- Use of market indicators. These are characteristics of the targeted market that are expected to change if the market is truly being transformed. Examples include the number or percentage of manufacturers offering a new efficient technology, number or percentage of retail outlets carrying the product, amount of shelf space devoted to a targeted product or the prominence of its display in stores, product price, product technical specifications, percentage of consumers aware of a targeted product or service, or number or percentage of builders installing the technology in new buildings.

- Permanent change in the market. The program must include a logic for a chain of events that will result in permanent change in the market.
- An exit strategy. The program plan should have a clear logic explaining why the program stimulus to the market will no longer be needed after a specified period of time or after certain market indicators reach pre-specified levels. These exit trigger points / thresholds should be specified.

Re-Designing Energy Efficiency and Renewable Energy Programs to Transform Markets

In recent years, market transformation has increased in importance as a policy objective in publicly funded EE and RE programs, and experiences of various states have demonstrated that, under the right combination of circumstances, programs can cause lasting beneficial changes in markets. In most cases, these changes were not envisioned when the programs were designed. However, future programs, which consciously target these changes will increase the likelihood that the programs can ultimately be terminated once they have succeeded in transforming the market, and incorporating this type of thinking into program designs in New Jersey is an important strategy for improving program cost effectiveness.

Just as New Jersey's Electric Discount and Energy Competition Act requires state policymakers and officials to re-evaluate the balance among EE and RE policy objectives, restructuring should also motivate program designers and evaluators to reconsider the design of programs intended to pursue these objectives. It is likely that incorporating a more explicit focus on transforming markets will lead to improved future ratepayer-funded EE and RE programs in the state.

Traditional DSM refers to a wide range of DSM programs that have focused on acquiring energy efficiency on a customer-by-customer basis, usually through rebates or direct installation. In general, however, market transformation programs must include other actions designed to stimulate the supply and demand far energy efficiency. Thus, the primary difference between trying to transform markets and the resource-acquisition orientation of many New Jersey utilities' legacy DSM and energy-efficiency programs is that the objective of market transformation

is to cause lasting changes that lead to increased adoption of cost effective EE and RE products and services. The goal of resource acquisition, particularly when performance incentives for utility shareholders are tied to measured savings (e.g., shared savings mechanisms) is to save energy quickly, cost effectively, and in ways that could be easily verified. Attention to market barriers is important for designing effective marketing strategies for resource acquisition programs; however, whether or not a resource acquisition program causes lasting changes in markets is not central to its success. Saving energy is the key measure of success.

In contrast, the success of market transformation programs is dependent on understanding the reasons why a program has (or has not) changed a market -- e.g., the factors underlying changes in consumers' purchasing and usage decisions, and whether or not these changes can be expected to last. By directing attention to the factors underlying program performance, an emphasis on market transformation thinking provides a logical basis for mid-course corrections, and, ultimately, determining the appropriate time to terminate a program.

Emphasis on changing markets in order to improve EE and RE program effectiveness requires program designs that focus more consciously on the market barriers that impede investments in EE and RE products and services. There are seven generic strategies for overcoming market barriers that have been implicit in past DSM, EE, and RE program designs in different states and which should be evaluated in New Jersey:

- *Endorse Products and Practices.* Labeling programs such as Energy Star represent an important means to reduce customers' search costs, uncertainties regarding performance, and wariness regarding vendors' energy performance claims. Financial incentives also indicate that the program sponsors have endorsed the energy-savings potential of the product.
- *Provide Unbiased. Site-Specific Technical Information.* Site-specific technical information addresses customers' and other market participants' (e.g., builders') lack of awareness of, or poor understanding of, how to implement EE and RE opportunities. It also reduces uncertainty regarding the savings potential for a particular site and thus the value of capturing these opportunities.

- *Capture Time-Dependent Opportunities.* New construction, building renovation, and equipment replacements all offer very narrow windows of opportunity for consideration of EE and RE options in the decision-making process; once decisions have been made, costs to later retrofit are high. Targeting these lost opportunities may or may not overcome the underlying market barriers that create such narrow windows, but understanding these barriers is central to implementing programs that can capture lost opportunities cost effectively.
- *Accelerate Market Entry of New Products.* Somewhere early in the continuum between the R&D phase and the mature market phase of a product lie a variety of organizational market barriers that hinder deployment of market-ready but not-yet-commercialized products. Among these barriers is manufacturer's and distributor's uncertainty regarding the ultimate market demand for a product. Programs that address these barriers to market entry (e.g., through the provision of financial incentives, public information and awareness campaigns, and training/education programs) will accelerate the introduction of new EE and RE products.
- *Increase Availability/Quality of EE and RE Products.* Once products become commercially available, their diffusion is influenced by marketing practices (on the supply side) and individual or organizational purchasing processes (on the demand side). Financial incentives can increase the volume of product sales, lower prices as economies of scale are realized, and lead to or accelerate improvements in product quality. Increasing the availability of products involves making them easier for customers to locate and easier for marketers to promote.
- *Promote Practices/Technologies that can Form the Basis for Upgrades to Efficiency Standards/Building Codes.* The political acceptability of standards and codes is influenced, in part, by market participants' familiarity with newer EE and RE products,

services, and practices. Working actively to achieve a threshold level of adoption is often instrumental to building the consensus necessary to institute or change standards and codes.

- *Provide Start-up Funding/Support for New (and Existing) EE and RE Providers.* Creating market opportunities for existing and new businesses whose financial livelihood is tied to their ability to overcome market barriers is an important element of focusing on transforming markets. Creating institutional support (e.g., measurement and verification protocols, certification of qualified providers, etc.) or providing financial support may be instrumental to jump-starting these activities; once providers are established, they may no longer need this support.

This list of strategies is not exhaustive, nor is it intended to suggest that all state programs have embraced them. Rather, it illustrates how a focus on transforming markets as a strategic framework for program design could lead to improvements over past program designs, and there are usually multiple program approaches available to implement the strategies. The salient point is that a focus of the Energy Efficiency and Customer-Sited Renewable Energy programs on transforming markets in New Jersey requires that program evaluation includes measures of the success (and lastingness) of the programs' approaches, in addition to how much energy the programs may save.

Section II

The Current State of Performance in New Jersey

A major goal of the New Jersey SBC EE&RE programs, as articulated by the New Jersey Electric Discount and Energy Competition Act of 1999 (EDECA), the BPU, the New Jersey Department of Environmental Protection, and the New Jersey Clean Energy Collaborative (NJCEC), is to achieve EE&RE market transformation.[1] As discussed above, market

1While a major goal, it must be recognized that market transformation is not the only goal of the programs and that not all of the programs were intended to transform markets. Some were designed as transition programs and some were designed to meet

transformation refers to changes in the structure of the market for EE&RE products or services such that energy efficiency is improved and the changes remain after the programs have ended. Transforming a market means changing the types of products or services that are offered in the market, the basis on which purchase and behavioral decisions are made, the type or number of actors in the market, or in some other way altering the set of interactions in a self-sustaining way. Market transformation is actually a result or a desired outcome, more than it is a type of program. Unlike traditional DSM and EE programs, market transformation programs explicitly try to change the market so that the EE&RE products will be purchased in the future without ongoing programmatic intervention or government mandates or subsidies.

Many of the current EE&RE program plans in New Jersey acknowledge market transformation as a goal. However, as presently structured, these programs are unlikely to adequately transform the markets in question. The SBC EE&RE programs in place and in the process of being implemented by the Collaborative (as articulated in the FY 2002 budget) are not sufficient to bring about the widespread market transformation desired by all of the stakeholders:

- Some of the programs and initiatives may contribute to or facilitate market transformation; for example, the C&I Compressed Air System Optimization Program and the Residential Energy Star Products Program.
- Some of the programs may hinder market transformation; for example, the Customer-Sited Clean Energy Generation Program.[2]
- Some of the programs may have little or no effect on market transformation; for example, the Residential Low Income Program, the School Energy Efficiency and Renewable Energy

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other CRA objectives set forth in EDECA, such as addressing the needs of low-income customers and capturing lost opportunities.

[2]Natural Gas Fuel Cells are defined as Class I renewables in the EDECA legislation. Nevertheless, natural gas is a fossil fuel, whereas renewables are defined as solar, wind, biomass, photovoltaics, and hydro. The Collaborative does support some RE market transformation initiatives, such as infrastructure development through sponsorship of the Photovoltaic Installer Training Program, and the development of customer educational materials.

Education Program, the Residential Retrofit Program, and the Residential Air Conditioning Cycling Load Control Program.

- For some of the programs, even years from now, it may be difficult to determine what, if any, effects were exerted on market transformation; for example, the C&I Building Operations and Maintenance Program and the C&I Energy Efficient Construction Program.

Thus, not only are the FY 2002 budget and program plans not sufficient to achieve the desired levels of market transformation in the state (which are themselves unknown and unspecified), but some of the programs may not even be necessary -- and some may actually be counterproductive.

Several Programs May Facilitate Market Transformation

While the impact on market transformation of most of the Collaborative's programs is questionable, several, such as the C&I Compressed Air System Optimization Program and the Residential Energy Star Products Program, may contribute to or facilitate market transformation.

The C&I Compressed Air System Optimization Program is designed to progressively raise the efficiency baseline of compressed air O&M, system design and redesign, and the market demand for compressed air system optimization and create market conditions whereby independent businesses can build a sustainable market to address these opportunities. The program has identified the major market barriers, disaggregated the market into two segments -- systems less than 300 HP and those greater than 300 HP, targeted the larger system segment for market transformation, and developed a specific time frame and exit strategy, according to which the incentives will be phased out and a sustainable market developed.

The Residential Energy Star Products Program promotes the sale and purchase of Energy Star rated and labeled residential products, and the long-term goal is to transform the market into one in which Energy Star residential products become the market standard. The program focuses primarily on lighting, appliances, and windows, and the three segments offered by different utilities are being merged into a joint initiative. Nevertheless, the Program recognizes that the market barriers and commercialization strategies for each segment are unique and must be addressed differently. Importantly, the Collaborative has quantified the

different markets for each of these products and has developed plans that reflect these market and product differences. The Program is also coordinated with other national (EPA) and regional Residential Energy Star market transformation initiatives.

Programs That May Hinder Market Transformation

Some of the programs may hinder market transformation; for example, the Customer-Sited Clean Energy Generation Program. This program is designed to coordinate administration of a statewide Customer Customer-Sited Clean Energy Generation Program, and its goal is to promote market transformation. However, the way the program is currently being implemented is likely to retard rather than facilitate renewable energy market transformation. The Collaborative's plans and FY 2002 budget for this program do not evidence an adequate understanding of renewable energy and have inappropriately committed the most important portion of the RE incentives to non-renewable energy programs.

- The SBC RE program contained substantial initial incentives for facilitating the renewable energy industry in New Jersey:
- The first block of 2 MW of RE funding contained a subsidy level of up to 60 percent.
- The second block of 5.5 MW funding contained a subsidy level of up to 50 percent.
- The third block of 12.5 MW funding contained a subsidy level of up to 40 percent.
- The fourth block of 30 MW funding contained a subsidy level of up to 30 percent.
- However, the Collaborative has already committed substantial portions of blocks one and two, which involve the most substantial subsidies, to natural gas fuel cells. These are not renewable energy technologies (natural gas is a fossil fuel) and they will provide no incentive for the development of a renewable energy industry in New Jersey -- one of the major goals of the program. In fact, by funding natural gas fuel cells with renewable energy money, the Collaborative is actually preventing the achievement of one of the major objectives of EDECA and the state legislature.

This inappropriate use of incentive funds intended to stimulate renewable energy in New Jersey will likely hinder and delay RE market transformation:

- First, funds intended for renewable energy incentives are being devoted to a non-renewable fuel, natural gas, that competes with renewable technologies in the marketplace.
- Second, not only is the program withholding funds from renewable technologies, but it does not even guarantee timely grid interconnection to installed RE systems.[3] This is seriously interfering with RE market penetration in New Jersey.
- Third, since the program is ostensibly assisting RE technologies, its failure to do so will likely lead policymakers in New Jersey to conclude that RE is not commercially viable in the state.[4]

Some Programs May Have Little or no Effect on Market Transformation

Some of the Collaborative's programs may have little or no effect on market transformation; for example, the Residential Low Income Program, the School Energy Efficiency and Renewable Energy Education Program, the Residential Retrofit Program, and the Residential Air Conditioning Cycling Load Control Program.

The Residential Low Income Program is designed to improve energy affordability for low-income households. While this is a laudable and important goal, the program is not designed to facilitate market transformation and it will therefore have little market effect.

[3]There are no interconnect regulations, although the utilities have agreed to process interconnection applications within 30 days. Nevertheless, some PV systems have not been interconnected for more than 90 days.

[4]Other factors interfering with the development of a robust RE market in New Jersey include high initial system costs, a lack of experienced contractors working in the field, the lack of product available for shipment to New Jersey, and a lack of adequate marketing.

Through the School Energy Efficiency and Renewable Energy Education Program, certain utilities in the state will make available to learning institutions select resources and support for energy efficiency and renewable energy education initiatives. These initiatives are designed to instill appropriate values and awareness in students and their families.

This is not a market transformation program, and the Collaborative admits this. It is, primarily, a legacy program that is being continued and expanded, and it contains no market-based metrics or evaluation measures. While such education programs may be desirable for a variety of reasons, they are not market transformation programs and there is no way to estimate what effect, if any, they may have on market transformation.

The Residential Retrofit Program provides information to interested customers on energy use and energy efficiency via sophisticated software and call centers. This is not a market transformation program, nor does the Collaborative purport it to be one. In fact, in the program description there is no mention of markets, barriers, or commercialization, and the proposed metrics are all input measures rather than output measures or market-based measures. There are no meaningful goals for the program and it is not clear what the program's objectives are. This appears to be another legacy program that is being continued.

The Residential Air Conditioning Cycling Load Control Program is designed to provide capacity relief on days of system peak by using radio-activated relays to selectively cycle air conditioning equipment through a variety of operating strategies. This is another legacy program that is being continued and, while it may be a worthwhile program, it has nothing to do with market transformation. The Collaborative recognizes this, and does not even attempt to address market issues in the program.

Some Programs May Have Indeterminate Effects on Market Transformation

For some of the programs, even years from now, it may be difficult to determine what, if any, effects were exerted on market transformation; for example, the C&I Building Operations and Maintenance Program and the C&I Energy Efficient Construction Program.

The goal of the C&I Building Operations and Maintenance Program is to create sustainable, market-driven improvements in the resource efficiency

of operation and maintenance practices in existing commercial buildings and industrial facilities. It is not clear if the Collaborative believes this is a market transformation program. If so, it has not developed appropriate market metrics or a market transformation strategy: Market transformation is not mentioned in the program strategy, and it is not clear what markets, if any, are targeted for transformation. Thus, even when the program is completed, it will be virtually impossible to determine if it has had any impact on market transformation.

The C&I Energy Efficient Construction Program is another legacy program that it being continued, and is it designed to address key market barriers to efficient building construction and design on the part of developers, designers, engineers, and contractors. One problem with this program is that it has four distinct goals, only one of which relates to market transformation. Another problem is that, despite a lengthy and detailed program description, very little attention is given to market transformation issues, market metrics, or market strategies. Due to the disparate goals and lack of market transformation specifications, the ultimate impact of this program on markets in New Jersey will likely be difficult to ascertain. In fact, the main virtue of this program seems to be that it has been long-offered by the state's utilities and they feel comfortable continuing to do what they have been doing.

Assessment

Even the brief summary above raises some troubling questions about the plans, structure, strategy, and implementation of the Collaborative's SBC EE&RE programs:

- First, it is clear that, despite the objective of market transformation articulated by the EDECA, the state legislature, the BPU, and the Collaborative itself, most of the programs, as currently configured, are not likely to facilitate market transformation.
- Second, many of the programs currently being implemented are derived from utility DSM and EE legacy programs, and it is thus relatively straightforward for the Collaborative to produce detailed plans, budgets and metrics for these programs.[5]

[5]It should be noted that these programs were approved by the BPU after considerable deliberation, based on input from the utilities and other parties. If the current Board feels

- Third, a basic tenant of the market transformation process is that utility legacy DSM and EE programs -- and the associated metrics and evaluation procedures -- are not necessarily appropriate for achieving market transformation.

Thus, the Collaborative's current budget and program plans may not be appropriate and should be revised to facilitate market transformation.

Section III

Problems with the New Jersey Market Transformation Strategy

Some Basic Problems

In order for a market transformation program to be successful, a minimum number of specific actions must be taken -- as discussed in Section I. However, this has not occurred in New Jersey; for example:

- Market transformation must be made the primary, overriding focus of all of the EE&RE programs from the beginning. In New Jersey, this has not been done.
- A comprehensive market transformation strategy must be developed prior to the programs' implementation. In New Jersey, this has not been done.
- Every program element, initiative, and funding proposal must be related directly to the market transformation objective and strategy. In New Jersey, not only is an adequate market transformation strategy not in place, but there is also little attempt to link specific program elements to market transformation objectives.
- Data on market change indicators must be identified and collected prior to program implementation. This was not done in New Jersey.

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that a different portfolio of programs or program budgets is warranted, it can modify the decision.

- Plans must be made for the funding for certain programs to be phased out as market transformation is achieved, and the remaining funds transferred to other programs. In New Jersey, such plans for funding termination and reallocation are lacking.
- Planning, implementation, and evaluation of market transformation programs requires staff with a different set of skills and expertise than are required for traditional utility DSM, EE, and evaluation programs. There is little evidence that this has been recognized in New Jersey, nor have programs been developed to appropriately retrain current staff.[6]
- Market transformation programs consist of an integrated set of activities that change over time to achieve specific goals and objectives tied to desired market effects and, since the outcomes are expected to last after the activities have ended, evaluation activities must also continue after the programs' termination. There are no plans in New Jersey to do this.
- Precise exit goals and strategies must be developed so that transformed markets can be identified and market transformation successfully implemented. In New Jersey, these goals and strategies have not been developed.
- Risks must be accepted: Penalizing an implementer for a well-conceived but ultimately unsuccessful market transformation program -- by, for example, denying cost recovery or withholding shareholder incentives -- will send the message that market transformation programs are not worth the risk. There is no recognition of this type of risk acceptance in New Jersey.

[6]However, there exists substantial related skills and experience within the Collaborative that could be directed towards market transformation initiatives. Fore example, senior managers in the Collaborative hold marketing positions in the marketing departments of their companies, and most have significant marketing experience, and the individuals who report to them have also significant marketing experience as well. In addition, the Collaborative has utilized consultants who have market transformation experience.

- Having a strong leading organization or advocate is critical to market transformation program success, and the final, overriding responsibility to ensure that a comprehensive, consistent market transformation strategy for all of the EE&RE programs is implemented in the state must be vested in a designated entity. In New Jersey, neither the BPU, the NJCEC, the DRA, the DEP, nor any other organization currently is fulfilling this role.
- Methods must be developed for attributing energy impacts to particular programs. This has not been done in New Jersey.
- Utility incentive mechanisms must be linked to evaluation results that address delayed market transformation impacts, since short-term energy savings frequently have little bearing on long term success. This has not been recognized in New Jersey.
- Evaluation requirements and standards must be specified prior to program implementation. This has not been done in New Jersey.
- Evaluation plans and protocols for market transformation programs must be developed that are different form those developed for traditional DSM and EE programs. This has not been adequately addressed in New Jersey.
- Market transformation initiatives must be focused more on changing markets and the overall patterns of behavior of market participants and less on influencing individual purchase decisions, and implementing this fundamental insight requires a specialized analytical framework for assessing cost-effectiveness. This framework has not been developed in New Jersey.

A successful market transformation strategy is analogous in an important sense to a successful total quality management (TQM) strategy. For example, when the TQM concept was introduced in the U.S. two decades ago, many firms contended that they already had quality control strategies in place. In reality, these strategies usually consisted of little more than sporadic inspections of completed products and exhortations to

employees to be quality conscious. However, the revolutionary aspect of TQM was the requirement that quality consciousness pervade every aspect of product development and production or service delivery, and that quality be the overriding, pervasive goal, not just one of many goals.

Similarly, market transformation requires a strategy that makes transforming the EE&RE markets in New Jersey the overriding, pervasive objective of every aspect of the SBC EE&RE programs, not just one of a number of goals. As noted, such a strategy does not, at present, exist in New Jersey. Until this is fully recognized and an appropriate strategy implemented, successful, maximum market transformation will not occur.

In order to claim that a market has been transformed it must be demonstrated that:

- There has been a change in the market that resulted in increases in the adoption and penetration of EE&RE technologies and / or practices.
- This change was due at least partially to a program or initiative (based both on data and a logical explanation of the program's strategic intervention and influence).
- This change is lasting, or at least that it will last after the utility program is scaled back or discontinued.

Only the first two conditions need to be met to demonstrate market effects, while all three need to be met to demonstrate market transformation. Early evaluation efforts should be focused first on evaluating market effects and potential reductions in market barriers; subsequently, evaluation of the long-term effects of the programs can be initiated. Given the current plans in New Jersey, it is not clear that it will be possible to conclusively demonstrate that any of these three changes have occurred.

Focus on Legacy DSM Issues

A focus on market adoption and transformation obviates the need to conduct separate studies of traditional DSM-related issues such as free ridership, program spillover, rebound effects, etc. The need for these types of analyses, which have consumed many resources in the past, is replaced by a more single-minded focus on the bottom line for market

transformation initiatives (i.e., by how much has the program increased market penetration relative to what would have taken place in the absence of the initiative?). However, this is not the case in New Jersey, where much of the program structure, planning, assessment, and evaluation has apparently been transferred almost verbatim from the state's legacy DSM initiatives.

For example, reliance on market penetration as the unit of analysis for cost-effectiveness shifts the focus of analytical attention from identification of classes of "participants" and "non-participants" to the development of program baselines -- forecasts of market conditions that would have occurred in the absence of a program. The difference between the program baseline and actual experience is the net effect of a program, and the program baseline establishes the reference against which both the benefits and costs of a market transformation initiative are measured.

If market transformation is the goal, quantifying energy impacts may not aid in deciding whether to continue the program. Evaluation of traditional DSM programs has generally focused primarily on quantifying energy impacts, so that decisions about continuing the programs can be made based on cost-effectiveness analysis. Cost-effectiveness results, in turn, have been used in some jurisdictions to determine the extent to which utilities are eligible to receive shareholder incentives, based on mechanisms and assumptions agreed upon by both regulators and utilities prior to program implementation. In contrast, many market transformation initiatives can be expected to achieve significant savings only after several years, with most of the savings coming after the program has ended (i.e., after the market has been transformed). Quantifying the energy impacts of market transformation programs In specific years, then, is of minimal value in deciding whether or not to continue the program -- although it may contribute to an understanding of how future programs should be designed and implemented, assuming that the energy impact analysis is complemented with process and market analysis that helps to explain why the resulting Impacts occurred.

However, as articulated in the program and evaluation plans and the RFPs issued by the NJCEC during 2001, the utility incentives in place in New Jersey are heavily weighted in favor of traditional DSM incentives and mainly involve estimating energy savings and numbers of program participants. For example, the major metrics for computing incentives listed in the NJCEC 7-9-01 *Performance Incentives* document are documented energy savings and numbers of program participants. Once

again, the efforts in New Jersey seem to be employing traditional and legacy DSM programs and evaluation techniques, while contending that these are designed to facilitate market transformation.

Data Requirements

To the extent that regulators or the utilities they regulate become involved in market transformation efforts, there is a need to know whether expenditures are worthwhile. This is the same question that businesses must ask about their expenditures when they try to transform the market for their products. Most do not require sophisticated analyses, but rather look for indications that expenditures are having the desired effect. While the justification for the expenditure of public funds may require more rigor, the same principle holds. If the primary focus of the program is on changing the market, then the evaluation should look for indications that the market is Indeed being changed.

Evaluation of market transformation programs requires that certain data collection and planning tasks be carried out as part of the initial program design, including:

- Establishment of baseline data on the range of market change indicators specific to the program effort
- Development of an expected logic for how, in what order, and when the program will affect each of these indicators

Some of these data are needed for designing the program to effectively address specific market barriers, while other data will be required solely for evaluation and monitoring purposes. Later evaluation research can then be conducted to determine whether these indicators have indeed been affected as anticipated and, if not, whether and how the program should be changed to achieve the desired results. Ongoing monitoring of the baseline is also required to ensure that the program is still needed. Because market transformation programs may take several years to achieve Impacts, it is possible that market conditions will change such that the program, as originally conceived, is either not needed or not properly targeted.

These data requirements are not adequately recognized in New Jersey, and appropriate evaluation of the market transformation initiatives will thus be extremely difficult.

Lack of Exit Strategies

One of the attractions of market transformation programs is that they are planned for a finite period, after which the market is changed indefinitely, and program designs should define their exit strategies. At least two general approaches can be used:

- A fixed time frame for the program to achieve a targeted efficiency improvement.
- A fixed efficiency Improvement to be achieved in a targeted time frame.

At present, it is not clear which of these strategies (if either) is being given priority in New Jersey.

The efficiency improvement to be realized by the market transformation program may be presented In a number of ways, for example, as an advancement of a technology's diffusion curve by a set number of years (10 to 15 years to reach market saturation rather than 20 years), a specific efficiency target (e.g., average change in efficiency of central air conditioning equipment on the market of two SEER points), a percentage change In market share (e.g., a change from two percent to ten percent market share), or incorporation of the efficiency improvement into building codes. Whatever the framework, an end point must be presented that will be triggered by pre-negotiated levels for one or more measurable market indicators.

In the existing program plans in New Jersey, such metrics and goals are not being adequately addressed.

Importantly, care must be taken in determining exit point parameters, so that specific market actors do not try to "game" the program (especially those receiving incentives as part of the program), by not allowing market indicators to reach threshold levels. It is thus necessary that a team representing the implementers and other stakeholders establish both the exit strategies and the market indicators against which the program's success will be judged. Further, it is also necessary for an independent, unbiased party to both establish the baseline market indicator levels and assemble the evidence as to whether these levels have been achieved. Finally, differences in how evaluation is conducted for market transformation programs requires that shareholder incentive mechanisms

linked to evaluation results be altered (e.g., to address delayed market transformation impacts and the need to tie portions of incentives to reaching market indicator milestones).

This is not currently being addressed in the New Jersey market transformation program.

Lack of Up-Front Market Research

To facilitate market transformation, it is critical to conduct market research prior to program design and implementation. Under traditional rebate programs, pre-program market research has often tended to be collected sporadically, and to focus on specific program design issues such as rebate levels and efficiency requirements. For programs explicitly intended to transform markets, however, the need for up-front market research increases greatly:

- First, in order to learn how to transform energy efficiency markets, it is necessary to first develop a detailed understanding of how these markets currently function. At a minimum, such understanding should include a specific theory about what market barriers are currently preventing customers from adopting cost-effective energy efficiency measures on their own, as well as a testable hypothesis about how utility intervention can overcome these barriers.
- Second, to be able to later document the possible effects of utility intervention, it is necessary to first establish baseline conditions for those market indicators that are expected to be affected by the program.

However, in New Jersey, most of this up-front market research was not conducted prior to the development and implementation of the EE&RE programs. In fact, as of February 2002, the market share monitoring RFP has yet to be issued. Unfortunately, in the absence of detailed market research, it is impossible to predict whether many programs currently being implemented (e.g., customer information) will be effective. Further, in the absence of such information, it may prove difficult to assess program effectiveness even after the fact.

Multi-Year Horizons

Market transformation programs must be evaluated over a multi-year analysis horizon, since the initiatives may consist of an integrated set of activities that change over time to achieve specific goals and objectives tied to desired market effects. These outcomes, moreover, are expected to last after the activities have ended, and evaluation activities must thus continue after the programs' termination.

The implications of this approach can be illustrated by comparing it to cost-effectiveness approaches for traditional DSM and energy-efficiency programs. In analyzing, for example, a traditional rebate program, emphasis is placed on the effects of rebates on customers that receive them. Subsequent adoptions by these same customers without rebates (participant spillover), and by other customers that have been influenced by the program yet have not "participated" in it (non-participant spillover), if they are considered, are included as "adders."

A multi-year analysis horizon focused on market penetration provides a more comprehensive representation of the overall changes in markets that market transformation initiatives are trying to effect. As noted earlier, adoption of such a focus eliminates the need to distinguish between "participants" and "non-participants" (the entire target market is the "participant") and the need to separately attribute (directly or indirectly) the actions of market participants to specific services offered by market transformation initiatives. Thus, evaluating market transformation programs requires examination of entire markets, not just direct program impacts, because a program affects only part of the market and understanding market developments outside of a program can be central to the success or failure of the program.

This is currently not being adequately recognized or addressed in New Jersey.

Reallocation of Program Resources

Evaluation of a market transformation program should reflect the fact that the program is attempting to change a market. This typically will require shifting resources away from estimating per-unit impacts and toward providing evidence of attribution of impacts to the program and measuring market indicators. Because of the longer time frames likely to be required to achieve market transformation program impacts,

evaluation efforts are needed to monitor market efficiency levels and, especially, key market indicators throughout the program.

These requirements are not currently recognized in New Jersey, where most evaluation resources are targeted toward estimating per-unit impacts.

A Different Type of Evaluation and Required Staff

As noted, transforming a market means changing the types of products or services that are offered in the market, the basis on which purchase and behavioral decisions are made, the type or number of actors in the market, or in some other way altering the set of interactions in a self-sustaining way. Market transformation is actually a result or a desired outcome, more than it is a type of program, and market transformation simply means that a market is indefinitely transformed as a result of a program. Therefore:

- Evaluation of market transformation programs must be conducted differently from evaluation of traditional DSM programs.
- Evaluation of market transformation programs should be based on measurement of market indicators and market change.
- Certain aspects of market transformation program evaluation must be negotiated prior to program implementation, due to the intractability of key research issues.
- Valid evaluation of market transformation programs requires analysts with a different set of skills, experience, and perspective from those required for evaluation of traditional DSM programs.

These special needs are currently neither being recognized nor addressed in New Jersey, and, until they are, rigorous and meaningful evaluation of market transformation in the state will not be possible.

Section IV

Some Specific Examples of the Problem in New Jersey

There are numerous specific examples of the failure of the current program in New Jersey to adequately recognize and address basic market transformation issues and imperatives. Some of these are summarized below.

Examples from the Early Interviews

The 1-11-02 interview with GPU

In this interview, GPU stated that "baselines will be established." But if market transformation were being implemented correctly, these baselines would have already been established. Further, GPU could have a conflict of interest with regard to objectively establishing market indicator baselines. For, the lower the baselines are set, the greater the program's impact will appear to be and the greater will be any utility incentives tied to the baselines. This is true for the baselines for market change indicators as well as for the baseline for the basic energy usage that the program is supposed to reduce. One possible solution to this problem is to have utilities and other interested parties work together to set the pre-program market indicator levels.

For example, reliance on market penetration as the unit of analysis for cost-effectiveness shifts the focus of analytical attention from identification of classes of "participants" and "non-participants" to the development of program baselines -- forecasts of market conditions that would have occurred in the absence of a program. The difference between the program baseline and actual experience is the net effect of a program, and the program baseline establishes the reference against which both the benefits and costs of a market transformation initiative are measured.

In addition, GPU stated that its C&I programs were showing high market acceptance, but then acknowledged that it did not know what percentage of the market this represents. However, evaluation of market transformation programs must be based on measurement of market indicators and market change, and GPU is clearly not able to do this. Thus, evaluating market transformation programs requires examination of

entire markets, not just direct program impacts, because a program affects only part of the market and understanding market developments outside of a program can be central to the success or failure of the program. Once again, program measurement and evaluation appear to be based on numbers of participants rather than market transformation
Finally, GPU stated that the evaluations would not provide comparisons between utilities.[7] However, evaluations lacking such comparisons are inadequate, since the benefits and costs associated with market transformation initiatives are determined by the geography of the markets they seek to influence, not by utility boundaries. Thus, a regional scope is needed in order to ensure that all relevant benefits and costs are included.

The 1-9-02 Interview with PSE&G and RECO

In the 1-9-02 Interview with PSE&G and RECO:

- The discussion revolved around DSM, and the interview summary would lead one to conclude that it is traditional DSM programs that are being implemented, since market transformation was never even mentioned.
- The utilities' staff indicated that they have been working on DSM programs since 1996. This may be well and good, but they should now be implementing market transformation programs, not DSM programs. They give no recognition of this, nor do they apparently recognize that different skills and expertise are required for market transformation initiatives than are required for DSM programs.

The 1-17-02 Interview with Conectiv

In this interview, Conectiv officials stated that:

- "Time of Use Rates are being phased out." Such a policy does not facilitate market transformation, it does not maximize the

[7]There are multiple levels of evaluation activities, and GPU believes that, while the market evaluation activities will not provide comparison between utilities, the program and process evaluation activities will.

efficient use of utility capital investment, and it will not minimize rates.[8]

- "Some DSM programs were in place before Conectiv was formed." These are legacy DSM programs, which may or may not facilitate market transformation.

Concerns Common in all of the Interviews

In all of the interviews on 1-9, 1-10, 1-11, and 1-17 with PSE&G, RECO, GPU, NUI, and Conectiv, none of the utility representatives mentioned an exit strategy for any of the programs, nor did they indicate that there are any plans for terminating some programs early as they achieve market transformation and for reallocating funds to other programs where the market transformation process is proving more difficult. This is a serious failing, since exit strategies are a critical element of a market transformation strategy: As noted, individual program plans should have a clear logic explaining why the program stimulus to the market will no longer be needed after a specified period of time or after certain market indicators reach pre-specified levels. These exit trigger points/thresholds should be specified and must identify the specific indicators, or combination of indicators, that will signal that the program should end and how they will be measured or estimated.

Problems With the Program Evaluation Documents

In all of the voluminous papers, reports, and statements produced by the NJCEC over the past year, not one deals comprehensively and exclusively with market transformation -- but this should have been the first one written.

Other concerns are itemized below.

Problems With Energy and Economic Assessment of Energy Efficiency Programs

[8]Conectiv notes that it is phasing them out due to restructuring and competition in the marketplace. If Conectiv is not the energy supplier, then it is not required and is unable to offer Time of Use rates to its customers. Third party suppliers may or may not offer these types of rates.

The NJCEC 7-9-01 document *Energy and Economic Assessment of Energy Efficiency Programs:*

- Contains no specific information on any EE market or market transformation program.
- Provides goals and objectives for many criteria, including energy savings, avoided costs, utility expenditures, emissions reductions etc., but none for market transformation.
- States that the Collaborative will eventually develop models for assessing market transformation but, in the meantime, will continue to use the existing, traditional program assessment framework. This is not an acceptable approach to assessing market transformation programs.
- Is using traditional DSM evaluation and cost effectiveness tests, such as Total Resource Cost. DSM program analysis has traditionally relied on the Total Resources Cost test, but the TRC test is not necessarily appropriate for market transformation, since measured cost is a primary element in assessing TRC costs. However, in assessing cost-effectiveness, the critical factor is not cost-effectiveness at current prices, because these prices may be high due to specific market barriers. Instead, the critical factor is likely future measured cost-effectiveness once market barriers have been addressed.

Problems With Performance Incentives

The 7-9-01 NJCEC *Performance Incentives* document does not represent an appropriate approach to market transformation. This paper proposes utility performance standards for the ten EE programs that would allow utilities to receive financial incentives. The metrics are detailed for awarding the incentives for each program and for each utility, and the major measures of success are energy savings and program participants, and the weighting of individual performance goals favors energy savings and program participation. Unfortunately, these are essentially the carry-over DSM success measures, and if there is one thing that all of the market transformation literature agrees on is that the evaluation standards and metrics for market transformation must be very different than those used in the traditional DSM and EE programs.

Market transformation efforts are different from most traditional utility DSM programs in several respects. The primary difference is that the fundamental goal of market transformation is to change markets, not save energy in the short term.

As noted earlier, a focus on market adoption obviates the need to conduct separate studies of traditional DSM-related issues such as free ridership, program spillover, rebound effects, etc. The need for these types of analyses is replaced by a more single-minded focus on the bottom line for market transformation initiatives. (i.e., by how much has the program increased market penetration relative to what would have taken place in the absence of the initiative?).

Second, evaluation of market transformation programs should be based on measurement of market Indicators and market change.

Third, a number of program characteristics cause basic evaluation issues to arise when attempts are made to apply standard DSM evaluation strategies to the evaluation of market transformation programs; these include:

- Delayed savings
- Impacts that transcend utility and / or state boundaries
- Reduced control by program implementers over the outcome of the program
- Program activities often conducted upstream of the consumer, so that it is not possible in some cases to identify all participants
- Program roles for the utility and regulator that may be supportive rather than primary

These characteristics give rise to some basic evaluation issues that cause market transformation evaluation to be different from traditional DSM program evaluation.

The 7-9-01 NJCEC *Performance Incentives* document also indicates that performance measures for market transformation programs will be developed over time. However, these need to be developed at the very beginning, not “eventually, over time.” By its nature, evaluation of

market transformation requires significant up-front investment to support development of the general market intelligence necessary to learn how to fundamentally change the way in which market actors interact. Thus, for programs explicitly intended to transform markets, the need for up-front market research is likely to increases greatly:

- First, in order to learn how to transform energy efficiency markets, it is necessary to first develop a detailed understanding of how these markets currently function. At a minimum, such understanding must include a specific theory about what market barriers are currently preventing customers from adopting cost-effective energy efficiency measures on their own, as well as a testable hypothesis about how utility intervention can overcome these barriers.
- Second, to be able to later document the possible effects of utility intervention, it is necessary to first establish baseline conditions for those market indicators that are expected to be affected by the program.

Market transformation evaluation must measure how markets have changed since the program began and plans and performance measures must thus be developed prior to program implementation, not during the course of the programs that are to be measured -- as is currently the case in New Jersey.
Performance Incentives further states that development of such indicators is difficult because they have not been previously explored in New Jersey markets. But this is all the more reason to start on these first and give major attention to them rather than letting "performance indicators for market transformations evolve over time."

The document discusses performance standards and incentives through 2003, and it thus may already be too late to start revising them to be applicable to market transformation.

Three factors are supposed to be considered in ranking and selecting programs to achieve market transformation:

- Likelihood that a market transformation initiative will be successful

- Potential energy savings
- Cost-effectiveness

Unfortunately, the Collaborative is concentrating almost exclusively on the latter two factors. In fact, it has no way of knowing which of the programs are likely to facilitate market transformation because it has never seriously attempted to estimate this. By the time the Collaborative begins estimating the effect of its programs on market transformation, the programs will have been running for several years and it may be too late. Alternately, by 2003 or 2004, radical reallocations of budgets and resources among programs may be necessary to achieve market transformation, but, since no mechanism is in place to do this, it will be impossible. Thus, New Jersey may be left with a disparate collection of programs, some of which facilitate market transformation, some of which may hinder it, and some of which may have no effect at all -- but it may be difficult to determine which programs do what.

Problems With Protocols to Measure Resource Savings

The 7-9-01 NJCEC document *Protocols to Measure Resource Savings* states that the protocols were developed to determine energy and resource savings and will be used to:

- Report to the BPU on program performance
- Provide inputs for cost-effectiveness assessments
- Calculate lost margin in revenue recovery
- Provide information to determine eligibility for administrative performance incentives
- Estimate the programs' environmental benefits

The specific relevance of these protocols to market transformation is not discussed, nor are markets measured.

Problems Common to all of the Documents

All of the documents seem to mention market transformation almost as an afterthought or as something that will, hopefully, result at the end of these programs. It is almost sounds as if some rhetoric for market transformation has been grafted onto old DSM planning and evaluation documents.

Problems With the RFPs

Some Generic Problems

The market share monitoring RFP has not yet been issued. This is a concern, since this RFP should have been the first one issued last year.

The RFPs being issued relate to individual programs and program elements, e.g., residential electric HVAC, commercial compressed air, etc. The market transformation-related activities specified relate to the individual program elements. There are several major problems with this approach:

- Since the NJCEC has itself not developed a comprehensive market transformation plan or strategy, the first RFP issued should have been issued early last year and -- should have been for development of such a strategy on an expedited basis. This strategy should have then guided and informed all of the other RFPs and program plans issued.
- Since such an RFP has not been issued, and there are no plans for issuing one, and since the Collaborative is not developing the strategy, from where is it supposed to come?
- Since the individual market transformation initiatives are apparently supposed to come out of the individual program plans and elements, and will be developed by different private contractors, there is little likelihood that they will be comprehensive, consistent, and inclusive.
- Such individually developed plans cannot deal with markets that overlap and transcend one another technically, jurisdictionally, and programmatically.

Problems With the RFP for an Evaluation Study of the C&I EE Program

The NJCEC 11-30-01 RFP for an evaluation study of the C&I EE program states seven separate goals for the evaluation program; market transformation is included as one part of one of the seven goals, specifically: "…..meeting long term market transformation goals for

energy efficient residential technologies and services." There are two potential problems here:

- First, market transformation should be the primary evaluation objective, not a subsidiary of one of seven goals.
- Second, how can an evaluation program for C&I programs provide market transformation goals for residential programs?

Problems With the RFP for an Evaluation Study of the Residential Programs

The NJCEC 11-30-01 RFP for an evaluation study of the residential programs suffers from most of the same weaknesses as the RFP for an evaluation study of the C&I EE programs. For example, it states that a comprehensive market assessment will be conducted in 2004. Such an assessment should have been initiated in 2001, not 2004. In other words, New Jersey will not have a compressive assessment of the residential markets until three years into the programs. Such an assessment is supposed to guide programs for market transformation, not be conducted three years after the programs have been initiated.

Problems With the RFP for the Customer-Sited Clean Energy Generation Program Evaluation Study

The NJCEC 11-30-01 RFP for the Customer-Sited Clean Energy Generation Program Evaluation Study suffers from the same general faults as the other RFPs. In addition, it does not even pay lip service to market transformation and never even mentions the term. So, how can the contractors responding be expected to focus on market transformation issues?

Section V

What New Jersey is Doing Right

The above criticisms of the current market transformation efforts in New Jersey should not be taken to indicate that none of the efforts underway in the state can facilitate the market transformation process or that all of the programs are necessarily misdirected. Under appropriate guidance and direction, many of the activities currently underway or being planned can

be re-configured into a comprehensive market transformation strategy. It is important that this re-configuration begin as soon as possible.

Selected examples of promising programs and initiatives in New Jersey are discussed briefly below.

The Critical Role of Collaboration

Geographically, most markets, and thus most potential market transformation effects, tend to occur at levels broader than the service territories of individual utilities. One implication of this is that utilities wishing to document their role in causing observed market changes will generally need to collect data beyond the boundaries of their service territory. The preferred approach toward this end is for utilities to collaborate with one another, comparing the evolution of EE&RE markets in each service territory. The NJCEC provides an appropriate vehicle for this collaboration.

The importance of this collaboration should not be underestimated. In general, utilities' resistance to coordination and cooperation is to be expected in an era of sharply increasing concerns over competition, and coordinated research is clearly be needed in order to learn about markets so that effective initiatives can be designed and implemented, and to demonstrate program effectiveness.

The Lead Implementer

Because market transformation programs work through the market instead of around it, many market transformation programs must include significant participation of a wide range of entitles, and consortia and partnerships are usually needed to make the effort successful. Without a strong lead charged with coordinating the activities and involvement of various parties, and with primary responsibility for timely implementation of the program, the initiative may dissipate. This lead implementer may be a special organization set up to implement the market transformation initiative (or a number of market transformation initiatives), or even one of the participating utilities with primary administrative responsibilities.
The NJCEC could become the vehicle through which the lead implementer functions.

Collection of Basic Baseline Data

Substantial baseline data have been collected or are in the process of being collected by the NJCEC -- either directly or through RFPs, and these data will be of use in developing a market transformation strategy. For example, a baseline study on customer attitudes and perceptions in the residential new construction market was completed in 2001. This study included collection of baseline information from other key market actors including builders, manufacturers, installers, lenders, building inspectors, and appraisers.

Recognition of Market Transformation

The program evaluation plans (but not all of the RFPs) at least give some lip service to market transformation and thus recognize its significance. For example, the NJCEC *Energy and Economic Assessment of Energy Efficiency Programs* states the "With the exception of the low income program, all of the programs analyzed here are explicitly designed to achieve permanent, long-term changes in the respective energy-efficiency market in which they intervene." There thus exists the opportunity to unite the expressed desire for market transformation with a comprehensive strategy to achieve it.

The salient point is that reconfiguring the New Jersey program into a market transformation strategy should be relatively straightforward, given that the participants already agree (at least in theory) that market transformation is the ultimate goal.

Analyses of Market Barriers

Market transformation activities are devised in direct response to identified market barriers, and understanding the particular market barriers for a measure is necessary in order to develop and implement successful market transformation activities. Fortunately, the NJCEC recognizes the importance of identifying the major barriers to EE, and has listed the identification of these barriers as a major task in the RFPs issued on 11-30-01.

Some Recognition of the Difference Between Market Transformation and DSM

In the 7-9-01 program evaluation plan the Collaborative notes that one of the major differences between traditional EE programs and market

transformation programs is the target audience for the program. It further notes that, whereas market transformation program evaluation focuses on changes in the market, evolution of traditional programs focuses on the behavior of individual participants. This recognition, in theory, of the differences between traditional DSM evaluation and evaluation of market transformation programs is a useful and necessary first step in implementing appropriate evaluation programs.

Recognition of the Role of Financial Flexibility

The NJCEC recognizes that some flexibility is required with respect to utilities' incentives and program budgets. For example, the utilities have requested the flexibility to exceed their budget by at least 110 percent for any one program and to exceed annual program budgets by 150 percent. The Board has allowed such flexibility in the past, and is currently considering this request.

As noted earlier, program and budget flexibility is a key to successful market transformation programs.